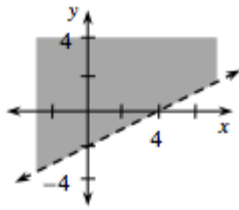


1. Write an inequality that represents the graph below.



Equation:

2. Is the point $(0, 4)$ a solution to the system of inequalities below? Justify your answer.

$$y \leq -3x + 4$$

$$y > x^2 + 3x - 2$$

3. Factor these quadratic expressions completely, if possible.

a. $x^2 + x - 30$

b. $-3x^3 + 23x^2 - 14x$

c. $2x^2 - 5x + 4$

d. $6x^3 + 10x^2 - 24x$

4. Solve each inequality below for the given variable. Then represent each solution on a number line.

a. $4x - 3 \geq 9$

b. $3(t + 4) < 5$

c. $\frac{2y}{7} < 8$

d. $5x + 4 > -3(x - 8)$

5. Brian was holding a ballroom dance. He wanted to make sure girls would come, so he charged boys \$5 to get in but girls only \$3. The 45 people who came paid a total of \$175. How many girls came to the dance?

6. Solve each quadratic equation using the specified method.

- a. The Quadratic Formula

$$0 = 3x^2 + 4x - 7$$

- b. Factoring

$$x^2 - 3x - 18 = 0$$

- c. Completing the square

$$x^2 + 4x + 1 = 0$$

- d. Using a graph

$$2x^2 + 5x - 12 = 0$$

7. Given the quadratic function $f(x) = (x - 1)^2 - 4$:

- a. State the location of the vertex.
- b. Determine the x -intercepts.
- c. Sketch a graph of the function.

8. Graph the system of inequalities below on graph paper.

$$y < x^2$$

$$y \geq x + 2$$

9. Lew says to his granddaughter Audrey, “Even if you tripled your age and added 9, you still wouldn’t be as old as I am.” Lew is 60 years old. Write and solve an inequality to determine the possible ages Audrey could be.

10. Determine the number of solutions for each equation.

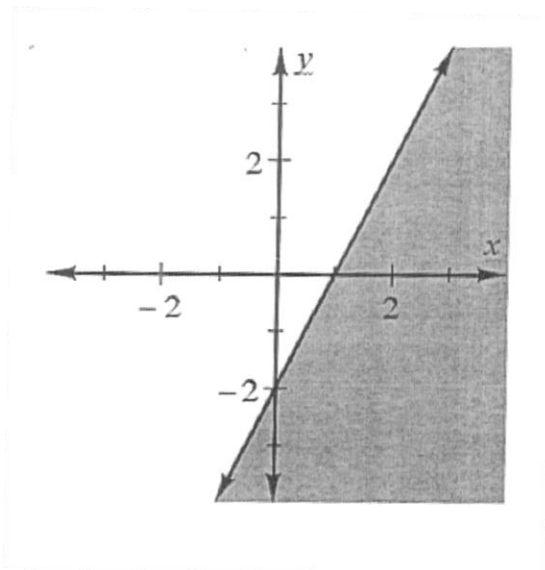
a. $x^2 - 6x + 9 = 0$

b. $x^2 + 2x - 13 = 0$

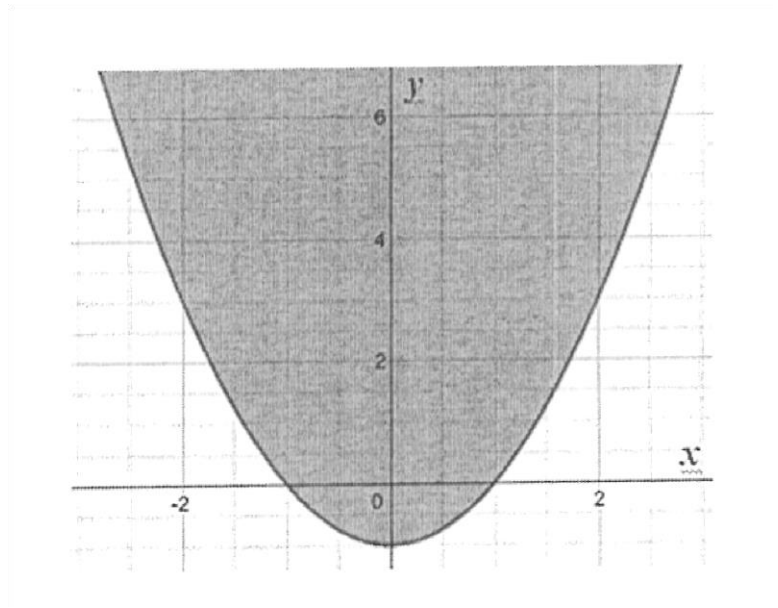
c. $x^2 - 2x + 17 = 0$

11. Write an inequality to represent each graph.

a.



b.



12. Solve the equation using any tool you would like.

a. $4x^2 + x - 1 = 0$

13. Simplify each expression completely.

a. $(x + 4y)^2$

b. $(2x - y)^2$

14. Solve the following using the zero products property.

a. $25x^2 - 16 = 0$

b. $3x^2 - 6 = -17x$

c. $12x^2 - 18x + 4 = 4$

15. Draw a graph of the following system of inequalities

a. $y > x^2 - 4$ and $y < \frac{1}{3}x + 2$

b. $y \leq x^2 + 5x + 6$ and $y > \frac{1}{5}x + 4$

16. Put the following quadratic into Vertex form, and then solve the equation.

$$x^2 + 16x = -10$$

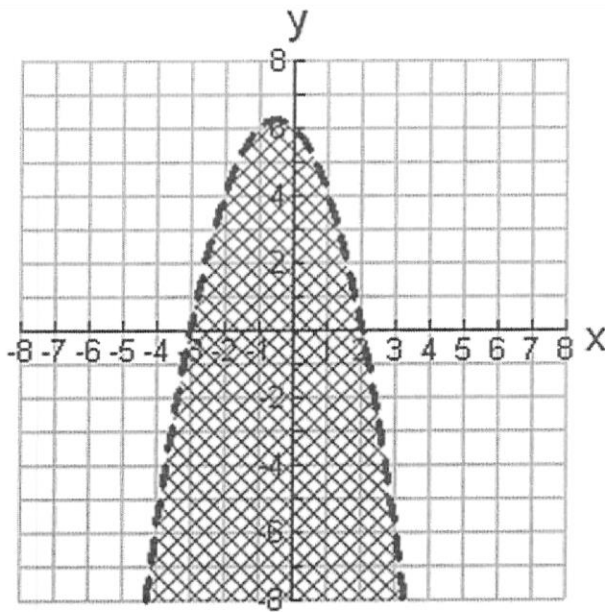
17. Determine if the given ordered pair is a solution to the equation.

a. $(1, -4)$

b. $(3, 1)$

c. $(0, 4)$

d. $(-2, 4)$



18. Write the equation of a Quadratic in standard form given the following.

a. x-intercepts: $x = \frac{2}{3}$ $x = -\frac{1}{5}$

b. x-intercepts: $x = -4$ $x = 6$

c. x-intercepts: $x = 7$

d.

x	-4	-3	-2	-1	0	1	2	3	4
y	11	6	2	0	-1	-1.5	-1.5		

e.

x	-7	-4	0	5	9
y	0	6	9	0	15